

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Date: Dec. 10, 2009

Applicants: Bednorz et al.

Docket: YO987074BZ

Serial No.: 08/479,810

Group Art Unit: 1751

Filed: June 7, 1995

Examiner: M. Kopec

Appeal No. 2009-003320

For: NEW SUPERCONDUCTIVE COMPOUNDS HAVING HIGH TRANSITION
TEMPERATURE, METHODS FOR THEIR USE AND PREPARATION

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**SUPPLEMENT I
REQUEST FOR REHEARING
UNDER
37 C.F.R. § 41.52 (a)(1)
Of
Decision on Appeal dated 09/17/2009**

Sir: Please consider the following.

Pursuant to 37 C.F.R. § 41.51 (a)(1) appellants request rehearing of the
Decision on Appeal dated 09/17/2009 (Board's Decision).

The Request For Rehearing submitted on No. 19, 2009 shall be referred to
herein as the Initial Request or the Initial Request for Rehearing and this paper shall re
ferred to as the Supplement or the Supplement Request fro Rehearing..

1. Supplement Section

Appellants in the paragraph bridging BVI pages 155-156 cite the United States Supreme Court decision in *In re Horwath* 210 USPQ 689. The Board's Decision did not comment on nor rebut this analysis. It is equally applicable to the Board's Decision as applied in the following paragraph

In *In re Horwath* at 210 USPQ 689, 692, the United States Supreme Court citing *Webster v. Higgins* 105 US 580, 586 states in regards to patent applications that an applicant "may begin at the point where his invention begins, and describe what he has made that is new and what it replaces of the old. That which is common and well known is as if it were written out in the patent and delineated in the drawings." In the present invention how to create a superconducting current was well known in the art before Applicants' discovery. The processes for making the superconducting elements of the apparatus of Applicants' claims that carry the superconducting current is not new but well known prior to Applicants' discovery. What is new is Applicants' discovery that materials exist having a $T_c \geq 26^\circ\text{K}$. This is what Applicants are claiming, their discovery of an apparatus carrying a superconductive current with a $T_c \geq 26^\circ\text{K}$. *In re Horwath* states at 210 USPQ 689, 691 "an inventor need not ... explain every detail since he is speaking to those skilled in the art. What is conventional knowledge will be read into the disclosure." The Board's Decision has not shown what information is missing from Applicants' specification that is not known to person of skill in the art prior to Applicants' discovery that is necessary for a person of skill in the art to know in order to practice to their full scope the inventions of Appellants' claims for which the Board's Decision did not reverse the Examiner's rejections. Specific examples that are not specifically identified in Applicants' specification that have $T_c \geq 26^\circ\text{K}$ that can be made according to Applicants' teaching are enabled according to the CCPA in *In re Angstadt*, supra, *In re Cook*, supra, *Minerals Separation V. Hyde* supra and *In re Fisher* supra. Missing information cannot be knowledge in advance of species that come within the scope of Appellants' claims that are not specifically identified the Appellant's Specification since it is well settled law that a patent applicant does not have to foresee all species that come

within the scope of an applicant's claims. As stated in the Initial Request the Board's Decision did not identify what the Board considered the "new aspect" of Appellants' claims. At BV1 pages 155-156 Appellants clearly state that it is not the method of making the materials or the methods of testing the material but the discovery that materials exist having a $T_c \geq 26^\circ\text{K}$.

2. Supplement Section

MINERAL SEPARATION V. HYDE

Appellants in the paragraph bridging BV1 pages 228-237 cite the United States Supreme Court decision in *Minerals v. Hyde* in support of the enablement of their claims. This applies to the Subsection III claims. The Board's Decision did not comment on nor rebut this analysis. Appellants' discussion is equally applicable to the Board's Decision as applied in the following paragraphs

The CCPA states in *In re Angstadt*, 537 F.2d 498, 503-504 (C.C.P.A. 1976) 190 USPQ 214 citing the United States Supreme Court decision *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261, 270-71 (1916):

To require disclosures in patent applications to transcend the level of knowledge of those skilled in the art would stifle the disclosure of inventions in fields man understands imperfectly, like catalytic chemistry. The Supreme Court said it aptly in *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261, 270-71 (1916), in discussing the adequacy of the disclosure of the froth flotation process of ore separation:

Equally untenable is the claim that the patent is invalid for the reason that the evidence shows that when different ores are treated preliminary tests must be made to determine the amount of oil and the extent of agitation necessary in order to obtain the best results. Such variation of treatment must be within the scope of the claims, and the certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter. The composition of ores varies infinitely, each one presenting its special problem, and it is obviously impossible to specify in a patent the precise treatment which would be most successful and economical in each case. The process is one for dealing with a large class of substances and the range of treatment within the terms of the claims, while leaving something to the skill of persons applying the invention, is clearly sufficiently definite to guide those skilled in the art to its successful

application, as the evidence abundantly shows. This satisfies the law. Mowry v. Whitney, 14 Wall. 620; Ives v. Hamilton, 92 U.S. 426, and Carnegie Steel Co. v. Cambria Iron Co., 185 U.S. 403, 436, 437 [Emphasis added.]

The text in bold shall be referred herein to as The Supreme Court Minerals v. Hyde Enablement Statement.

In *Minerals Separation, Ltd. v. Hyde* Patent No. 835120 (Minerals Patent), issued November 6, 1906, was asserted by the plaintiff against the defendant's method. The claims of this patent are directed to improvements in the concentration of ores by a process of oil flotation. The defendant asserted that the claims were not enabled. The Supreme Court held that claims 1, 2, 3, 5, 6, 7 and 12 were valid. The reason for why these claims were found enabled is quoted above in bold from *In re Angstadt*. Claims 1 and 12 found enabled by the Supreme Court are:

1. The herein-described process of concentrating ores which consists in mixing the powdered ore with water, adding a small proportion of an oily liquid having a preferential affinity for metalliferous matter, [amounting to a fraction of one percent, on the ore), agitating the mixture until the oil-coated mineral matter forms into a froth, and separating the froth from the remainder by notation.

12. The process of concentrating powdered ore which consists in separating the minerals' from gangue by coating the minerals with oil in water containing a fraction of one per cent, of oil on the ore, agitating the mixture to cause the oil-coated mineral to form a froth, and separating the froth from the remainder of the mixture.

The claims found enabled are directed to "ores." The Supreme Court did not require the claims of the Minerals Patent to be limited to the ores that were recited in the patent or be limited to a genus corresponding to what the Minerals Patent's Specification provides "guidance" in identifying, as the term "guidance" is used in the Board's Decision. Because it is well settled law that all species that come within the scope of a claims do not have to be foreseen in advance when a patent application is filed (see the numerous legal precedent cited in Appellants' Brief and Appellants' Replies, e.g. BV1 paragraph

bridging pages 47-68 citing *Sri Int'l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985); 227 USPQ 577, 586 "[t]he law does not require the impossible. Hence, it does not require that an applicant describe in his specification every conceivable and possible future embodiment of his invention. The law recognizes that patent specifications are written for those skilled in the art, and requires only that the inventor describe the 'best mode' known at the time to him of making and using the invention. 35 U.S.C. § 112." and BV1 page 48, lines 13-23, "Enablement does not require the inventor to foresee every means of implementing an invention at pains of losing his patent franchise. Were it otherwise, claimed inventions would not include improved modes of practicing those inventions. Such narrow patent rights would rapidly become worthless as new modes of practicing the invention developed, and the inventor would lose the benefit of the patent bargain. *Invitrogen Corp. v. Clontech Labs., Inc.*, 429 F.3d 1052, 1071 (Fed. Cir. 2005)" And, "[o]ur case law is clear that an applicant is not required to describe in the specification every conceivable and possible future embodiment of his invention." *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1344, 60 U.S.P.Q.2D (BNA) 1851 (Fed. Cir. 2001).")

. Appellants note the Board's Decision is in conflict with the United States Supreme Court's *Mineral Separation* decision, the CCPA *In re Angstadt* decision, the CCPA *In re Cook* decision and the CAFC *In re Wands* decision when it states at DB page 20, lines 2-4 from the bottom, in reference to Subsection II superconductors (as defined at BD page 17, lines 2- 6) "[a]s explained above, Appellants' Specification provides a reasonable amount of direction or guidance in identifying the compositions in question as possessing high temperature superconductive characteristics" and when it at BD page 38, lines 1 -4 from the bottom, states "[t]he prior art of record in this appeal is limited to fabrication of mixed transition metal oxide materials of the type discussed in subsections I and II. None of the claims in this subsection III are limited to such materials."

Initially the Board's Decision provides no legal authority for the statement that "a reasonable amount of direction or guidance in identifying the compositions in question as possessing high temperature superconductive characteristics" is necessary to satisfy the

enablement requirement. There is no United States Federal Court decision that states that “a reasonable amount of direction or guidance in identifying” species that com within the scope of a claim in necessary to satisfy the enablement requirement of that claim to its full scope. The Board is does not have the authority to create new law in this manner. The primary decisions on this the United States Supreme Court’s *Mineral Separation* decision, the CCPA *In re Angstadt* decision and the CAFC *In RE Wands* have no such requirement. BV1, page 51, lines 9-14, states:

the patent legal term “guidance” is directed to “the manner and process of making and using [the invention].” When the teaching of a patent application requires undue experimentation to practice the invention, guidance on how to carry out the experiment can result in enablement even though the experimentation is not recorded as a performed example in the specification.

The Board’s own precedential decision *Ex parte Jackson* 217 USPQ 804 does not support the Board’s Decision when it states that “a reasonable amount of direction or guidance in identifying the compositions in question as possessing high temperature superconductive characteristics” is necessary to satisfy the enablement requirement.

BV1 paragraph bridging pages 51-52 states:

The Board in *Ex parte Jackson* 217 USPQ 804 and 807 states “a considerable amount of experimentation is permissible if it is merely routine.” As stated by the Examiner the experimentation to find other species is merely routine. The Board in *Ex parte Jackson* goes on to state if the experimentation is not merely routine there is enablement “if the specification in question provides [a reasonable , sec] amount of guidance with respect to the direction in which the experimentation should proceed to enable the determination of how to produce a desired embodiment of the invention claimed.” 217 USPQ 804, 807. Thus guidance is needed when the experimentation is not merely routine. Since there is no evidence in the present application that anything other that routine experimentation is needed to determine other species, than specifically described by Applicants’, the guidance provided by Applicants’ teaching is sufficient to satisfy enablement.

In re Wands states the same.:

Enablement is not precluded by the necessity for some experimentation such as routine screening. n19 However, experimentation needed to practice the invention must not be undue experimentation. n20 **“The key word is ‘undue,’ not ‘experimentation.’”** n21

The determination of what constitutes undue experimentation in a given case requires the application of a standard of reasonableness, having due regard for the nature of the invention and the state of the art. *Ansul Co. v. Uniroyal, Inc.* [448 F.2d 872, 878-79; 169 USPQ 759, 762-63 (2d Cir. 1971), cert. denied, 404 U.S. 1018, 30 L. Ed. 2d 666, 92 S. Ct. 680 (1972)]. **The test is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed * * *. n22**

In re Wands, 858 F.2d 731, 737 (Fed. Cir. 1988)
(Emphasis added.)

BV1 page 102, lines 6-10, state:

The CCPA *In re Angstadt* further goes on to say

having decided that appellants are *not* required to disclose every *species* encompassed by the claims even in an unpredictable art such as the present record presents, each case must be determined on its own facts. 190 USPQ 214, 218. (Emphasis in the original).

Thus in the present applications “[A]ppellants are *not* required to disclose every *species* encompassed by the claims.” *In re Angstadt*. And “considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed.” *In re Wands*. There is no evidence in the present application and the Board’s Decision cites no evidence that anything other than routine experimentation is needed to find superconductors corresponding to Subsection III of the Board’s Decision that fall outside of what the Board’s Decision considers enabled. Appellants have contended throughout the prosecution of the present application and this appeal that only routine experimentation is needed to find species that come within the scope of Appellants’ claims to their full scope. This is undisputed.

In *In re Wands* the broadest method claim held enabled reads:

1. An immunoassay method utilizing an antibody to assay for a substance comprising hepatitis B-surface antigen (HBsAg) determinants

which comprises the steps of:

contacting a test sample containing said substance comprising HBsAg determinants with said antibody; and

determining the presence of said substance in said sample;

wherein said antibody is a monoclonal high affinity IgM antibody having a binding affinity constant for said HBsAg determinants of at least 10^9 M^{-1} .

In re Wands, 858 F.2d 731, 734 (Fed. Cir. 1988)

This claim is directed to any “antibody to assay for” any “substance comprising hepatitis B-surface antigen (HBsAg) determinants.” There is no requirement in *In re Wands* for the appellant’s specification to provide (as defined at BD page 17, line 6) “direction or guidance in identifying the compositions in question as possessing” the “antibody” or “substance comprising hepatitis B-surface antigen (HBsAg) determinants” as the Board’s Decision in the present appeal is requiring when it states at BD page 38, lines 1 -4 from the bottom, “[t]he prior art of record in this appeal is limited to fabrication of mixed transition metal oxide materials of the type discussed in subsections I and II. None of the claims in this subsection III are limited to such materials.” Thus the Board’s Decision in the present appeal is in conflict with *In re Wands* and *In re Angstadt* and is thus an error of law.

BV1 page 232, lines 14-26, states

The CCPA in *In re Angstadt*, 537 F.2d 498, 503 (C.C.P.A. 1976) 190 USPQ 214 commenting on the dissent states:

The dissent’s reliance on *In re Rainer*, 54 CCPA 1445, 377 F.2d 1006, 153 USPQ 802 (1967), is misplaced. If *Rainer* stands for the proposition that the disclosure must provide “guidance which will enable one skilled in the art to determine, with reasonable certainty before performing the reaction, whether the claimed product will be obtained” (emphasis in original), as the dissent claims, then all

"experimentation" is "undue," since the term "experimentation" implies that the success of the particular activity is uncertain. Such a proposition is contrary to the basic policy of the Patent Act, which is to encourage disclosure of inventions and thereby to promote progress in the useful art

Thus it is clear that *In re Angstadt* does not support the implied statement in the Board's Decision at BD page 20, lines 1-3 from the bottom, that "Appellants' Specification [must] provides a reasonable amount of direction or guidance in identifying the compositions in question as possessing high temperature superconductive characteristics."

Moreover, the starting materials and conditions did not have to be specified for all "antibodies" or for all "substance comprising hepatitis B-surface antigen (HBsAg) determinants" for the *Wands* claim 1 to be found enabled.

In re Wands states

When Wands' data is interpreted in a reasonable manner, analysis considering the factors enumerated in *In re Forman* leads to the conclusion that undue experimentation would not be required to practice the invention. Wands' disclosure provides considerable direction and guidance on how to practice their invention and presents working examples. There was a high level of skill in the art at the time when the application was filed, and all of the methods needed to practice the invention were well known.

In re Wands, 858 F.2d 731, 740 (Fed. Cir. 1988)

Appellants note that *In re Wands* in this passage states "Wands' disclosure provides considerable direction and guidance on how to practice their invention and presents working examples." *In re Wands* does not state (as stated at BD page 20, lines 1-3, from the bottom) "direction or guidance in identifying the compositions in question as possessing" (emphasis added) the "antibody" or "substance comprising hepatitis B-surface antigen (HBsAg) determinants." It is not necessary under *In re Wands* for there to be "direction or guidance in identifying the compositions in question as possessing" the high T_c property. Thus the Board's Decision is in conflict with *In re Wands* and is thus legal error. Applying the above passage to the present application on appeal "[Appellants'] disclosure provides considerable direction and guidance on how to practice their invention [including Subsection III superconductors] and presents working

examples. There was a high level of skill in the art at the time when the application was filed, and all of the methods needed to practice the invention were well known.” Since the Board’s Decision finds to the contrary it is legal error.

In re Wands states:

Although inventions involving microorganisms or other living cells often can be enabled by a deposit, n14 a deposit is not always necessary to satisfy the enablement requirement. n15 **No deposit is necessary if the biological organisms can be obtained from readily available sources or derived from readily available starting materials through routine screening that does not require undue experimentation.** n16 Whether the specification in an application involving living cells (here, hybridomas) is enabled without a deposit must be decided on the facts of the particular case. n17

In re Wands, 858 F.2d 731, 736 (Fed. Cir. 1988)
(Emphasis added.)

Thus *In re Wands* permits an undisclosed species to be found enabled if it “can be obtained from readily available sources or derived from readily available starting materials through routine screening that does not require undue experimentation.” There is no requirement in *In re Wands* for the “sources or ... starting materials” to be described in the Specification corresponding to the claims on appeal, it is only required that there be “readily available” and that what is claimed be “be obtained from readily available sources or derived from readily available starting materials **through routine screening that does not require undue experimentation.**” In the present application on appeal there is no evidence that species (including Subsection III superconductors) within the scope of the claims for which the Board’s Decision has not reversed the Examiners’ rejections cannot be “be obtained from readily available sources or derived from readily available starting materials through routine screening that does not require undue experimentation.”

] *In re Wands* states:

Appellants contend that their written specification fully enables the practice of their claimed invention because the monoclonal antibodies needed to perform the immunoassays can be made from readily

available starting materials using methods that are well known in the monoclonal antibody art. Wands states that application of these methods to make high-affinity IgM anti-HBsAg antibodies requires only routine screening, and that does not amount to undue experimentation. There is no challenge to their contention that the starting materials (i.e., mice, HBsAg antigen, and myeloma cells) are available to the public. The PTO concedes that the methods used to prepare hybridomas and to screen them for high-affinity IgM antibodies against HBsAg were either well known in the monoclonal antibody art or adequately disclosed in the '145 patent and in the current application.

In re Wands, 858 F.2d 731, 736 (Fed. Cir. 1988)

Applying this to the present application on appeal “Appellants contend that their written specification fully enables the practice of their claimed invention [including Subsection III claims] because the [high T_c superconductors] ... needed to [practice the claimed invention including the Subsection III claims] ... can be made from readily available starting materials using methods that are well known in the [materials art, in particular the ceramic fabrication] art. [Appellants] states that application of these methods to make high-[T_c superconductors] ... requires only routine screening, and that does not amount to undue experimentation. There is no challenge to [Appellants'] contention that the starting materials [to make high T_c superconductors]... are available to the public. The PTO concedes that the methods used to prepare [high T_c superconductors] ... to screen them for [determining if they have a T_c greater than or equal to 26°K] ... were either well known in the [materials, in particular the ceramic fabrication] art or adequately disclosed in the ... in the current application.

BV1 page 191-192 notes paragraph 50 of the DST Affidavits (Brief Attachment AM, AN and AO) state:

I have personally made many samples of high T_c superconductors following the teaching of Bednorz and Mueller as found in their patent applications. In making these materials it was not necessary to use starting materials in stoichiometric proportions to produce a high T_c superconductor with insignificant secondary phases or multi-phase compositions, having a superconducting portion and a non-superconducting portion, where the composite was a high T_c superconductor. Consequently, following the teaching of Bednorz

and Mueller and principles of ceramic science known prior to their discovery, I made, and persons of skill in the ceramic arts were able to make, high T_c superconductors without exerting extreme care in preparing the composition. Thus I made and persons of skill in the ceramic arts were able to make high T_c superconductors following the teaching of Bednorz and Mueller, without experimentation beyond what was well known to a person of ordinary skill in the ceramic arts prior to the discovery by Bednorz and Mueller.

This is uncontested.

BV1 page 173, paragraph 8, notes paragraph 8 of the DST Affidavits (Brief Attachment AM, AN and AO) state:

Once a person of skill in the art knows of a specific type of composition described in the Bednorz-Mueller application which is superconducting at greater than or equal to 26°K , such a person of skill in the art, using the techniques described in the Bednorz-Mueller application, which includes all principles of ceramic fabrication known at the time the application was initially filed, can make the compositions encompassed by the claims of the Bednorz-Mueller application, without undue experimentation or without requiring ingenuity beyond that expected of a person of skill in the art of the fabrication of ceramic materials. This is why the work of Bednorz and Mueller was reproduced so quickly after their discovery and why so much additional work was done in this field within a short period after their discovery. Bednorz and Mueller's discovery was first reported in Z. Phys. B **64** page 189-193 (1996).

This is uncontested.

BD page 38, lines 1 -4 from the bottom states "[t]he prior art of record in this appeal is limited to fabrication of mixed transition metal oxide materials of the type discussed in subsections I and II. None of the claims in this subsection III are limited to such materials." This is an error of fact. BV1 paragraph 12 of pages 174-175 note DST Affidavits state at paragraph 12:

The general principles of ceramic science referred to by Bednorz and Mueller in their patent application and known to a person of ordinary skill in the ceramic fabrication art can be found in many books and articles published before their discovery, priority date (date of filing of their European Patent Office patent application EPO 0275343A1, January 23, 1987) and initial US Application filing date (May 22, 1987). An

exemplary list of books describing the general principles of ceramic fabrication are:

- a) Introduction to Ceramics, Kingery et al., Second Edition, John Wiley & Sons, 1976, in particular pages 5-20, 269-319, 381-447 and 448-513, a copy of which is in Attachment B.
- b) Polar Dielectrics and Their Applications, Burfoot et al., University of California Press, 1979, in particular pages 13-33, a copy of which is in Attachment C.
- c) Ceramic Processing Before Firing, Onoda et al., John Wiley & Sons, 1978, the entire book, a copy of which is in Attachment D.
- d) Structure, Properties and Preparation of Perovskite-Type Compounds, F. S. Galasso, Pergamon Press, 1969, in particular pages 159-186, a copy of which is in Attachment E.

These references were previously submitted with the Affidavit of Thomas Shaw submitted December 15, 1998.

BV1 pages 175-176 paragraph 13 notes that paragraph 13 of the DST Affidavits list an exemplary list of articles applying the general principles of ceramic fabrication of DST Affidavit paragraph 12 to the types of materials described in Appellants' Specification.

BV1 page 183 paragraph 31 notes that DST paragraph 31 refers to the book "Structure, Properties and Preparation of Perovskite-Type Compounds" by F. S. Galasso, published in 1969, which is Brief Attachment E.

BV1 page 183 paragraph 32 notes that DST paragraph 32 refers to the standard reference "Landholt-Börnstein", Volumn 4, "Magnetic and Other Properties of Oxides and Related Compounds Part A" (1970). (See Brief Attachment N).

BV1 page 184 paragraphs 33 and 34 notes that DST Paragraph 33 of each DST AFFIDAVIT reference the standard reference "Landholt-Börnstein, Volume 3, Ferro- and Antiferroelectric Substances" (1969) (See Brief Attachment P)

BV1 page 185 paragraph 36 notes that DST paragraph 36 of each DST AFFIDAVIT reference the book "Crystal Structures" Volume 4, by Ralph W. G. Wyckoff, Interscience Publishers, 1960. (See Brief Attachment R)

BV1 page 186-187 paragraph 39 notes that paragraph 39 of each DST AFFIDAVIT reference the following articles:

- (1) Brief Attachment V - "Mixed bismuth oxides with layer lattices", B. Aurivillius, Arkiv Kemi 1, 463, (1950).
- (2) Brief Attachment W - "Mixed bismuth oxides with layered lattices", B. Aurivillius, Arkiv Kemi 1, 499, (1950).
- (3) Brief Attachment X - "Mixed bismuth oxides with layered lattices", B. Aurivillius, Arkiv Kemi 2, 519, (1951).
- (4) Brief Attachment Y - "The structure of $\text{Bi}_2\text{NbO}_5\text{F}$ and isomorphous compounds", B. Aurivillius, Arkiv Kemi 5, 39, (1952).

BV1 page 189 paragraph cites paragraph 45 of each DST AFFIDAVIT which references Brief Attachment AA the Powder Diffraction File Index.

The prior art references identified in DST Affidavits paragraphs 12, 31, 32, 33, 34, 36, 39 and 45, which are of record, are not "limited to fabrication of mixed transition metal oxide materials of the type discussed in subsections I and II" as states at DB page 38, lines 1 -4 from the bottom which is thus an error of fact.

Retuning the Supreme Court's *Minerals Separation v. Hyde* decision, the claims of Minerals Patent include within their scope "ores" described in the patent, ores known by others and not described in the patent, ores not yet discovered and, moreover, would include within their scope an ore type materials that was not naturally occurring, but

which could be made by man. The Supreme Court states as quoted above in the Supreme Court *Minerals v. Hyde* Enablement Statement “[t]he composition of ores varies infinitely.” The patent applicant was not required to describe the infinite variation of the ores in the patent to generically claim an ore and for this generic claim to be enabled for all ores. The only specific description in the Minerals Patent of an ore is at Col. 1, lines 10 – 12 which states “[t]his invention relates to improvements in the concentration of ores, the object being to separate metalliferous matter, . graphite, and the like from gangue by means of oils, fatty acids, or other substances which have a preferential affinity for metalliferous matter over gangue” and at Col. 2, lines 70 – 76, “The following is an example of the application of this invention to the concentration of a particular ore. An ore containing ferruginous blende, galena, and gangue consisting of quartz, rhodonite, and garnet is finely powdered and mixed with water containing a fraction of one per cent, or up to one per cent, of a mineral acid or acid salt, conveniently sulfuric acid or mine or other waters containing ferric sulfate.” The reason given by the Supreme Court, as quoted above in The Supreme Court *Minerals v. Hyde* Enablement Statement, for why the generic claims covering an infinite number of species were enabled is “[t]he process is one for dealing with a large class of substances and the range of treatment within the terms of the claims, while leaving something to the skill of persons applying the invention, is clearly sufficiently definite to guide those skilled in the art to its successful application, as the evidence abundantly shows. This satisfies the law.” That there is a large class (infinite in number) of substances within the scope of the claim that may not be specifically described, and where the specification only describes a small number of preferred embodiments, does not render the claim not enabled. The Supreme Court clearly says “leaving something to the skill of persons applying the invention is clearly sufficiently definite to guide those skilled in the art to its successful application.” Moreover, there is no certainty that the claimed method in the Materials Patent would work for every ore until it was experimentally determined to work for a particular ore. This did not render the claims not enabled. It is clear that the Supreme Court did not find that it was necessary to know what ores the process worked for in advance since this was experimentally determinable by techniques known to persons of skill in the art following the teaching in the Minerals Patent. Thus the patent applicant of the Minerals Patent was not required to foresee (or

predict in the sense used by the Board's Decision of the present application) all species that came within the scope of the Minerals Patent claims. The same is true of the claims under appeal herein and for which the Board's Decision has not reversed the Examiner's rejections as not enabled. The Board's Decision states in the paragraph bridging pages 28-29, page 27 lines 1-11, in regards to the Subsection III superconductor materials and claims:

While Appellants' Specification provides reasonable guidance for the mixed transition metal oxides discussed previously, there is insufficient if any guidance in the Specification for the other materials embraced by the claims under review as correctly indicated by the Examiner (*see* Ans. 23-24). For example, the Specification provides 23 pages of disclosure concerning these mixed transition metal oxides and their constituent elements (i.e., transition metals, rare earth and rare earth-like elements, and alkaline earths) but does not provide any disclosure at all of making high temperature superconductors from any other specifically identified elements. *See Genentech*, 108 F.3d at 1366 ("[W]hen there is no disclosure of any specific starting material or any of the conditions under which a process can be carried out, undue experimentation is required"). Under these circumstances, we are unconvinced by Appellants' argument that the Examiner has failed to establish a *prima facie* case of non-enablement for the claims discussed in this subsection.

As stated in the Initial Request Appellants note that the Board's Decision misapplies *Genentech*. The United States Supreme Court in *Minerals Separation v. Hyde* found a claim enabled that included within its scope "composition of ores [that] varies infinitely, each one presenting its special problem" (see *Minerals Separation v. Hyde* Enablement Statement above) based on Mineral Patent Col. 2, lines 70 – 76, and description in the Minerals Patent of an ore at Col. 1, lines 10 – 12. Thus 8 lines were sufficient to enable a claim the included within its scope "composition of ores [that] varies infinitely, each one presenting its special problem." Thus the 23 pages of Appellants' Specification is sufficient to enable the Subsection III claims even though as stated by the Supreme Court in *Mineral Separation v Hyde* "it is obviously impossible to specify in [an Appellants' Specification] the precise treatment which would be most successful and economical in each case" in making and testing each species that comes with in the scope of Appellants

Subsection III claims. Thus it is not fatal to the enablement of Appellants' Subsection III claims that Appellants Specification " does not provide any disclosure at all of making high temperature superconductors from any other specifically identified elements" as stated in the Boards' Decision in the passage quoted above. It is clear that in *Mineral Separation v. Hyde* the United States Supreme Court found that it was not fatal to the enablement of a claim that included within its scope an infinite number of unspecified species. The Board's Decision is legal error since it is in conflict with the Supreme Court Decision in *Mineral Separation v. Hyde* and has misapplied the CAFC decision in *Genentech*.

Appellants have provided abundant evidence to show that persons of skill in the art knows how to make species of materials that can be tested to determine if they have the high T_C property. The Examiner has acknowledged this at page 8 of the Final Action where the Examiner states:

The Examiner does not deny that the instant application includes "all know principles of ceramic science", or that once a person of skill in the art knows of a specific type of composition which is superconducting at greater than or equal to 26K, such a person of skill in the art, using the techniques described in the application, which included all principles of ceramic fabrication known at the time the application was initially filed, can make the known superconductive compositions. The numerous 1,132 declarations, such as those of Mitzi, Shaw, Dinger and Duncombe, and the Rao article, are directed to production of know superconductive materials. (Emphasis in the original)

The Board's Decision does not rebut this. It is uncontested that persons of ordinary skill in the art know how to make and test species that come within the scope of all of Appellants' claims (including Subsection III claims) to their full scope. There is no evidence to the contrary. There is no evidence that there is a species if high T_C superconductor that cannot be made according to Appellants' teaching. This statement has been referred to in the Brief Volume 4 as the Examiner's First Enablement Statement. It is un rebutted that persons of skill in the art know how to test material to determine whether they have a T_C greater than or equal to 26 K.

It is clear from the *Minerals Separation, Ltd. v. Hyde* Supreme Court decision that experimental determination of species that come within the scope of a claim satisfies the enablement requirement. This is clear as quoted above in the Supreme Court Minerals v. Hyde Enablement Statement in which the Supreme Court states “[e]qually untenable is the claim that the patent is invalid for the reason that the evidence shows that when different ores are treated preliminary tests must be made to determine the amount of oil and the extent of agitation necessary in order to obtain the best results. Such variation of treatment must be within the scope of the claims, and the certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter.” It is clear from the evidence presented by Appellants that persons of skill in the art know how to make materials and test them for the high T_C property. With regard to this subject matter, what the Board’s Decision is requiring in the present application is unreasonable and beyond “the certainty which the law requires in patents.” It is clear from the Supreme Court decision in *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261 that it is not necessary for the patent applicant to know in advance what materials (“ores” in the Minerals Separation Patent) the claimed process is applicable to and what the value of parameters (amount of oil and degree of agitation) are in advance. It is thus not necessary for a patent applicant to provide a “disclosure of ... specific starting materials and ... conditions under which a process can be carried out” for every species that comes within the scope of Subsection III claims as the Board’s Decision is requiring. This is an error of law. They can be experimentally determined. That the applicant had no theory to predict these parameters in advance of making these experimental measurements does not render the claims not enabled. As stated in the Brief Volume I the contemporary term of “predictable and unpredictable arts” in patent decisions does not mean “theoretical predictability” and does mean determinable by theory or experiment. In *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261 determinability is provided by experiment. The Supreme Court says this “is clearly sufficiently definite to guide those skilled in the art to its successful application.... This satisfies the law.” Following the Supreme Court Minerals v. Hyde Enablement Statement Applicants’ teaching “satisfies the law. “

The Board's Decision improperly applies this quote from *Genentech*, 108 F.3d at 1366 "[W]hen there is no disclosure of any specific starting material or any of the conditions under which a process can be carried out, undue experimentation is required." Under these circumstances, we are unconvinced by Appellants' argument that the Examiner has failed to establish a prima facie case of non-enablement for the claims discussed in this subsection." *Genentech* applies this language to the situation where there is no species that comes within the scope of the claim that is enabled. The 23 pages of Appellants' Specification that the Board's Decision says are limited to Subsection I and II species are species that come within the scope of the Subsection III claims. . . There were no such species in *Genentech*. Thus the Board's application of this language from *Genentech* is an error of law.

In *Genentech* the CAFC states in regards to the claim under review identifying the "novel aspect" of this claim in comparison to of an earlier filed application stating "[t]his claim differs from the claim adjudicated in prior case in reciting that the encoded protein [recited in the claim under review] has an additional amino acid sequence and includes the step of cleaving this conjugate protein. This process of expressing a DNA encoding a conjugate protein and using an enzyme to cleave off an undesired portion of that protein is generally known as cleavable fusion expression. "*Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1363 (Fed. Cir. 1997) Thus the CAFC has specifically identified what it considered to be the "novel aspect" of the claim in *Genentech*. In the Initial Request for Rehearing Appellants noted that the Board's Decision does not identify what the Board considers to be the "novel aspect" of the Subsection III claims of the present Application. The CAFC further states in *Genentech*

While every aspect of a generic claim certainly need not have been carried out by an inventor, or exemplified in the specification, reasonable detail must be provided in order to enable members of the public to understand and carry out the invention. That requirement has not been met in this specification with respect to the cleavable fusion expression of hGH. *Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1366 (Fed. Cir. 1997)

The CAFC here is explicitly stating that. "every aspect of a generic claim **certainly need not have been carried out by an inventor, or exemplified in the specification**"

(Emphasis added.) The CAFC further states "[t]hat requirement has not been met in this

specification with respect to the cleavable fusion expression of hGH.” that is with respect to the “novel aspect” of the *Genentech* claim. The CAFC further states

It is true... that a specification need not disclose what is well known in the art. ... However, when there is no disclosure of any specific starting material or of any of the conditions under which a process can be carried out, undue experimentation is required; there is a failure to meet the enablement requirement that cannot be rectified by asserting that all the disclosure related to the process is within the skill of the art. It is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement.

Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1366 (Fed. Cir. 1997)

In this quoted language the CAFC is referring to the “novel aspect” which in the CAFC made clear in regards to the *Genentech* claim is “cleavable fusion expression of hGH.” The CAFC is stating when no example is provided of how to achieve “cleavable fusion expression of hGH.” undue experimentation is required if as later discussed in *Genentech* the experimentation to determine how to achieve “cleavable fusion expression of hGH” is not only routine experimentation. In the passage quoted above the CAFC states “when there is no disclosure of any specific starting material or of any of the conditions under which a process can be carried out, undue experimentation is required” (Emphasis added.) By the use of the words “a process” it is clear indication that the CAFC is referring here to the fact that the *Genentech* specification provided no example of how to practice “cleavable fusion expression of hGH.” This is not true for the Subsection III claims of the present Specification on appeal since the 23 pages referred to by the Board’s Decision listing Appellants’ specific embodiments are species that come within the scope of all the Subsection III claim for which the Board’s Decision did not reverse the Examiners rejections. This is clearly stated by the CAFC “the specification for the [the *Genentech* patent] does not provide a specific enabling disclosure concerning what the new claim recites, viz., obtaining hGH by cleaving an hGH-containing conjugate protein [that is the “novel aspect”].” Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1366 (Fed. Cir. 1997) And, “it stands to reason that if the disclosure of a

useful conjugate protein and the method for its cleavage were so clearly within the skill of the art, it would have been expressly disclosed in the specification, and in the usual detail.” Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1367 (Fed. Cir. 1997) The CAFC further states “the description of a wide range of enzymes in Methods in Enzymology, by itself, does not render routine the determination of an enzyme-conjugate protein combination.” Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1367 (Fed. Cir. 1997) As noted above the “process of expressing a DNA encoding a conjugate protein and using an enzyme to cleave off an undesired portion of that protein is generally known as cleavable fusion expression. “Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1363 (Fed. Cir. 1997) Thus the CAFC is stating either expressly or at least by implication that if the “the determination of an enzyme-conjugate protein combination” was a matter of routine experimentation, the *Genentech* claim would have been found enabled, even though there was no specific examples of this described in the *Genentech* specification.

The CAFC subsequently made this point clear in *AK Steel Corp. v. Sollac* commenting on *Genentech* stating:

as part of the quid pro quo of the patent bargain, the applicant's specification must enable one of ordinary skill in the art to practice the full scope of the claimed invention. Wright, 999 F.2d at 1561. **That is not to say that the specification itself must necessarily describe how to make and use every possible variant of the claimed invention, for the artisan's knowledge of the prior art and routine experimentation can often fill gaps, interpolate between embodiments, and perhaps even extrapolate beyond the disclosed embodiments, depending upon the predictability of the art. See *Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1366 (Fed. Cir. 1997) (“[A] specification need not disclose what is well known in the art.”); see also *Wands*, 858 F.2d at 736-37 (“Enablement is not precluded by some experimentation, such as routine screening.”).**

AK Steel Corp. v. Sollac, 344 F.3d 1234, 1244 (Fed. Cir. 2003)
(Emphasis added.”

There is no evidence in the present application on appeal that a species having the high T_c property cannot be made and tested following Appellants’ teaching, which is, for

example, by routine screening, in particular in regards to those claims which explicitly recite that the superconductive element can be made by know principles of ceramic science. Nothing more that what Appellant's teach is needed to "extrapolate beyond the disclosed embodiments" in Appellants Specification. Thus when the Board's Decision states at BD paragraph bridging page 29-30 quoting *Genentech*:

Appellants' arguments and evidence that these claims are enabled inappropriately rely on the knowledge and skill of the artisan, whereas "[i]t is the Specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement". *Genentech*, 108 F.3d at 1366.

the Board is misapplying *Genentech* which results in errors of law. The Board's Decision provides no evidence that more than routine experimentation is needed to make and test species corresponding to Subsection III claims outside the scope of what the Board's Decision has found enabled. The only other species referred to by the Total Final Rejection, Examiner's Answer or the Board's Decisions is MgB_2 referred to in the Schuller article. As noted in the first Affidavit of Newns (BV1 paragraph 19 page 201) this material is layered an attribute taught in Appellants' specification, is made following Appellants' teaching and was made more than 30 years before Appellants' discovery (RB3 page 2, lines 4-9) and is tested by methods known since 1911 (BV1 Paragraph 11 page 198.) Also, MgB_2 is composed of Mg and B both of which are constituents of known superconductors with a T_C less than 26 degrees Kelvin. (RB2, page 4, line 1, to page 5, last line) Thus determining that MgB_2 is a high T_C superconductor is routine screening and is enabled by Appellants' teaching.

Genentech cites *In re Wands* (*Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1365 (Fed. Cir. 1997)) which as described above states that all starting materials and starting conditions do not have to be listed in a patent specification but can be know in the art when only routine experimentation is involved in determine species not explicitly taught in the specification but which come within the scope of the claims under review. *Genentech* does not overrule *In re Wands*. Thus the Board's Decision misapplies *Genentech* and *In re Wands* in the present appeal and is thus an error of law.

BD paragraph bridging pages 31-32 states:

Further, we do not agree with Appellants that the mere capability to make and test compositions encompassed by the claims under review satisfies the enablement requirement. Rather, enablement requires the Specification to teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation wherein it is the Specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement. *Genentech*, 108 F.3d at 1365-1366.

The Board's Decision primarily relies on this statement from *Genentech* to find that undue experimentation is necessary to practice Appellants' Subsection III claims. The Board's Decision relies on no facts to support a finding that "undue experimentation" is necessary to practice these claims. As shown above this is not what *Genentech* stands for. The Board's Decision creates a rule of law not supported by *Genentech* -- thus the Board's Decision is an error of law.

About 1 years after the *Genentech* decision in *Liebel-Flarsheim Co. v. Medrad, Inc.* the CAFC states

the specification need not necessarily describe how to make and use every embodiment of the invention "because the artisan's knowledge of the prior art and routine experimentation can often fill in the gaps."

Liebel-Flarsheim Co. v. Medrad, Inc., 481 F.3d 1371, 1380 (Fed. Cir. 2007)

Thus contrary to what the Board's Decision states in the paragraph quoted above from BD pages 31-32, this is simply not the law. And it is uncontested in the Board's Decision that only routine experimentation

- "that ... does not require ingenuity beyond that to be expected of one of ordinary skill in the art" (*Fields v. Conover*, *Infra*) and
- that "the artisan's knowledge of the prior art and routine experimentation can ... fill in the gaps" (*Liebel*, *Supra*)

in making and testing species that come within the scope of the Subsection III claims outside the scope of what the Board's Decision states is enabled, in particular in regard to those claims which explicitly recite that the superconductor element can be made by know principles of ceramic science. The Board's

Decision has not made out a prima facie case of lack of enablement of the Subsection III claims since it has given no reason to doubt that persons of skill in the art can make and test Subsection III superconductors outside the scope of what the Board's Decision has found enabled. Thus the burden has not shifted to Appellants to rebut the Board's Decision that the Subsection III claims are not enabled. See BV1 page 16, lines 9-31, which state

As a matter of Patent Office practice, then, a specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented *must* be taken as in compliance with the enabling requirement of the first paragraph of §112 *unless* there is reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support.

In re Marzocchi, 58 CCPA 1069, 439 F. 2d 220, 169 USPQ 367, 369-370 (1971)

The Board's Decision has created a non-existent per se rule of lack of enablement from the *Genentech* decision that stands for the proposition that even if there are enabled species that come within the scope of a claim under examination, the claim is not enabled, if the claim includes within its scope species for which the specification does not explicitly describe starting materials and starting conditions, even if those undisclosed starting materials and starting conditions can be determined by routine experimentation by persons of ordinary skill in the art from what is known to them to make such other species. *Genentech* announced no such per se rule. This cannot be a correct statement of the law since it is well settled law that all species that come within the scope of a claim do not have to be foreseen or known in advance for that claim to be enabled. The use and application of *Genentech* by the Board to create the Board's created per se rule to find the Subsection III claims not enabled is an error of law.

Genentech was applied in Auto. Techs. Int'l. Inc. v. BMW of N. Am., Inc., 501 F.3d 1274 (Fed. Cir. 2007) (*ATT*) in regards to the means plus function element "means responsive to the motion of said mass upon acceleration of said

housing in excess of a predetermined threshold value, for initiating an occupant protection apparatus;" id at 1277 which was construed at the insistence of the patent owner so that "corresponding structure included not only mechanical switch assemblies, but also electronic switch assemblies, as identified in the specification" (Id at, 1278) that are directed to side impact sensors. The "new aspect "of this invention was this means element. The specification had extensive description of mechanical structure corresponding to this means element but only a vague description and conceptual view corresponding to the electronic means. "The specification even states that Figure 11 is a 'conceptual view' of an electronic sensor." Id at 1283. There was no working example of an electronic sensor. Id at 1280

~~The district court agreed with ATI that the specification contains structure corresponding to the claimed function in the form of mechanical and electronic means:~~

~~Auto. Techs. Int'l. Inc. v. BMW of N. Am., Inc., 501 F.3d 1274, 1279 (Fed. Cir. 2007)~~

The CAFC states in *ATI*:

Moreover, the specification [of the ATI patent] states that: "Side impact sensing is a new field. The only prior art in the literature utilizes a crush sensing switch as a discriminating sensor to detect a side crash." '253 patent, col.8 ll. 45-47. In fact, ATI stated that at the time it filed the application for the '253 patent, it did not know of any electronic sensors used to sense side impact crashes. Given that side impact sensing was a new field and that there were no electronic sensors in existence that would detect side impact crashes, it was especially important for the specification to discuss how an electronic sensor would operate to detect side impacts and to provide details of its construction. As was the case in *Genentech*, the specification provides "only a starting point, a direction for further research" on using electronic sensors for sensing side impact crashes; it does not provide guidance to a person of ordinary skill in the art on how to make or use an electronic side impact sensor. 108 F.3d at 1366. The specification fails to provide "reasonable detail" sufficient to enable use of electronic side impact sensors. Id.

Auto. Techs. Int'l, Inc. v. BMW of N. Am., Inc., 501 F.3d 1274, 1284 (Fed. Cir. 2007)

Appellants note the CAFC in *ATT* identifies what the “new aspect” was of the invention under review. In contradistinction, the Board’s Decision has not identified what the Board considers the “new aspect” of Appellants invention. As stated above Appellants have said that it is not the method of making or testing a superconductive element to determine if it is a high T_C superconductor, but is their discovery that there are materials with a T_C greater than or equal to 26 degrees Kelvin. Moreover, in the present application on appeal there is no evidence that anything other than Appellants’ teaching is needed to make species within the scope of the Subsection III claims outside of what the Board’s Decision has founded enabled.

The CAFC further states in *ATT*:

Disclosure of only mechanical side impact sensors does not permit one skilled in the art to make and use the invention as broadly as it was claimed, which includes electronic side impact sensors. Electronic side impact sensors are not just another known species of a genus consisting of sensors, but are a distinctly different sensor compared with the well-enabled mechanical side impact sensor that is fully discussed in the specification. Thus, in order to fulfill the enablement requirement, the specification must enable the full scope of the claims that includes both electronic and mechanical side impact sensors, which the specification fails to do.

Auto. Techs. Int'l, Inc. v. BMW of N. Am., Inc., 501 F.3d 1274, 1285 (Fed. Cir. 2007)

There is no reason given by the Board’s Decision to doubt that persons of skill in the art can make superconductive elements that come within the scope of the Subsection III claims and outside the scope of what the Board’s Decision indicates is enabled. As stated above, the only such species specifically identified in the Board’s Decision is MgB_2 which, as stated above, is layered as taught by Appellants Specification, is made in the same way as taught by Appellants’ Specification, was made more than 30 years before Appellants’ discovery, its constituent Mg is explicitly taught in Appellants Specification and both

constituents Mg and B are constituents of superconductors known prior to Appellants' discovery. Thus unlike the situation in *ATI*, MgB_2 is not distinctly different than what Appellants teach in their Specification. The Board's Decision identifies no species that come within the scope of the Subsection III claims outside the scope of what the Board's Decision considers enabled that is distinctly different from what the Board's Decision considers enabled.

A means plus function element has the unique feature of linking structures that are unrelated except for the function they provide. Thus a means for flowing a current can link a water pipe and an electric wire. If this were not the "new aspect" of the claim, under *ATI* specific detail would not be needed for each since persons of skill in the art would know how to make each, but if this is the "new aspect" specific detail is needed for each since a teaching of how to make one does not teach a person of skill in the art how to make the other. This is not the situation of the present application on appeal. Thus *ATI* and *Genentech* do not support the Board's Decision in regards to Subsection III claims, but support Appellants' position that these claims are enabled.

In re Angstadt, 537 F.2d 498 (BV1 page 12, lines 11-17) cites *Fields v. Conover* which states

a disclosure complies with the how-to-make requirement of 35 USC 112 even though "some experimentation, provided it is not an undue amount" (and provided that it does not require ingenuity beyond that to be expected of one of ordinary skill in the art), is still required to adapt the invention to particular settings.

Fields v. Conover, 58 C.C.P.A. 1366, 1372 (C.C.P.A. 1971)

In the present application on appeal in regards to Subsection III claims there is no evidence that "ingenuity beyond that to be expected of one of ordinary skill in the art" is required to practice these claims outside of the scope of what the Board's Decision has found enabled. If "a disclosure complies with the how-to-make requirement of 35 USC 112 even though "some experimentation... is still required to adapt the invention to particular settings" then it cannot be necessary for the Specification to supply all starting materials and conditions as required by the Board's Decision. As shown above *Genentech* only requires this for the

“novel aspect” of an invention that cannot be carried out by only routine experimentation. Thus even though *Genentech* states “it is the Specification, not the knowledge of one skilled in the art that must supply the novel aspects of an invention in order to constitute adequate enablement.” *Genentech*, 108 F.3d at 1365-1366 this is directed to the “novel aspect” as described above. As explained above *Genentech* and *In re Wands* when properly construed state if the “novel aspect” can be determined by routine experimentation, then the knowledge of one skilled in the art and not the specification can supply “the novel aspects of an invention in order to constitute adequate enablement”. There is no evidence that to make and test superconductor species for Subsection III claims out side of the scope of what the Board has stated is enabled requires more than routine experimentation or “ingenuity beyond that to be expected of one of ordinary skill in the art.”

As stated in the affidavits of Dr. Dinger (Brief Attachment AI), Dr. Tsuei (Brief Attachment AJ), Dr. Shaw (Brief Attachment AK), Mr. Duncombe (Brief Attachment AL), Dr. Mitzi (Brief Attachment AH) and in the DST AFFIDAVITS (Brief Attachments AM, AN and AO) to make the high temperature superconductors encompassed by Applicants’ claims, using the teaching of the present invention would not require ingenuity beyond that expected of one of ordinary skill in the art. This is un rebutted by the Board’ Decision.(See BV1 page 12, lines 5-11 from the bottom.” Paragraph 8 of each DST AFFIDAVIT states that “once a person of skill in the art knows of a specific type of composition described in the Bednorz-Mueller application which is superconducting at greater than or equal to 26°K, such a person of skill in the art, using the techniques described in the Bednorz-Mueller application, which includes all principles of ceramic fabrication known at the time the application was initially filed, can make the compositions encompassed by the claims of the Bednorz-Mueller application, without undue experimentation or without requiring ingenuity beyond that expected of a person of skill in the art of the fabrication of ceramic materials. (See BV1 page 173 paragraph 8.) This is uncontested by the Board’s Decision.

The CCPA in *In re Angstadt*, 537 F.2d 498, 503 (C.C.P.A. 1976) 190 USPQ 214 commenting on the dissent states:

The dissent's reliance on *In re Rainer*, 54 CCPA 1445, 377 F.2d 1006, 153 USPQ 802 (1967), is misplaced. If *Rainer* stands for the proposition that the disclosure must provide "guidance which will enable one skilled in the art to determine, with reasonable certainty before performing the reaction, whether the claimed product will be obtained" (emphasis in original), as the dissent claims, then all "experimentation" is "undue," since the term "experimentation" implies that the success of the particular activity is uncertain. Such a proposition is contrary to the basic policy of the Patent Act, which is to encourage disclosure of inventions and thereby to promote progress in the useful arts.

In the present application the Board's Decision (proposition) is requiring what the CCPA states is not required and "[s]uch a proposition is contrary to the basic policy of the Patent Act, which is to encourage disclosure of inventions and thereby to promote progress in the useful arts." The certainty that the Board's Decision is requiring is beyond what the Supreme Court requires and what the Patent Act requires.

The CCPA applies the Supreme Court *Minerals v. Hyde* Enablement Statement in *In re Bosy*, 53 C.C.P.A. 1231, 1234-1235 (C.C.P.A. 1966) 149 U.S.P.Q. (BNA) 789 stating:

The Supreme Court set out some guidelines with reference to the sufficiency of a specification to disclose an invention in such a manner as will enable one of ordinary skill in the art to make it in *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261 (1929), at 270-271: [Stating the Supreme Court *Minerals v. Hyde* Enablement statement quoted above.]

The CCPA also cite *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261 in *In re Corr*, 52 C.C.P.A. 1505, 1508 (C.C.P.A. 1965) 146 U.S.P.Q. (BNA) 69 and states "The certainty required in patents is not greater than that which is reasonable, having regard to the subject matter involved. *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261." *In re Hudson*, 40 C.C.P.A. 1036, 1040 (C.C.P.A. 1953)

The CAFC adopted the *Supreme Court Minerals v. Hyde Enablement Statement* in *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, stating:

The district court invalidated both patents for indefiniteness because of its view that some "trial and error" would be needed to determine the "lower limits" of stretch rate above 10% per second at various temperatures above 35 degrees C. That was error. **Assuming some experimentation were needed, a patent is not invalid because of a need for experimentation. *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261, 270-71, 61 L. Ed. 286, 37 S. Ct. 82 (1916). A patent is invalid only when those skilled in the art are required to engage in undue experimentation to practice the invention. *In re Angstadt*, 537 F.2d 498, 503-04, 190 USPQ 214, 218 (CCPA 1976).** There was no evidence and the court made no finding that undue experimentation was required.

W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1557 (Fed. Cir. 1983)220 U.S.P.Q. (BNA) 303 (1983) (Emphasis added.)

The Boards' reasons for finding Appellants' Subsection III' claims not enabled are inconsistent with the Supreme Court decision in *Minerals Separation, Ltd. v. Hyde*. For example, the following considers specifically identified reasons given in the Board's Decision: in applying the eight *In re Wands* factors to the Subsection III claims :

- I. At BD page 36, lines 12-13, in regards to *Wands* Factor 1 --quantity of experimentation necessary- the Board's Decision states "[t]here is no meaningful limit to the quantity of experimentation required by the claims in this subsection." In *Mineral Separation v. Hyde* (see the Mineral Separation v. Hyde Enablement Statement) the claim under consideration the included within its scope "composition of ores [that] varies infinitely, each one presenting its special problem." Thus a claim for which "[t]here is no meaningful limit to the quantity of experimentation required" is not fatal to the enablement of the claim.
- II. At BD page 37, lines 2-13, in regards to *Wands* Factor 2 -- the amount of direction or guidance presented- the Board's Decision states "Appellants' Specification gives no direction or guidance for making and using any high temperature superconductor material other than the mixed transition metal oxides discussed in subsections I and II.... . Second, the Specification disclosure concerning known principles of ceramic science

relates to direction provided by the prior art, not by Appellants. Therefore, Factor (2) also evinces non-enablement.”

- a. It is the Supreme Court’s position in *Minerals Separation, Ltd. v. Hyde* that such a position is untenable. The court states in The Supreme Court Minerals v. Hyde Enablement Statement quoted above “[e]qually untenable is the claim that the patent is invalid for the reason that the evidence shows that when different ores are treated preliminary tests must be made to determine the amount of oil and the extent of agitation necessary in order to obtain the best results.” Thus to satisfy enablement Appellants’ Specification does not have to give explicit direction or guidance for making and using every any high temperature superconductor material other than the mixed transition metal oxides discussed in Subsections I and II where persons of skill in the art know how to make and test Subsection III superconductors (including those within and without of the scope of what the Board’s Decision has found enabled) by routine methods. And the Specification disclosure concerning known principles of ceramic science that relates to direction provided by the prior art and not explicitly by Appellants is sufficient to establish enablement

- III. At BD page 37, lines 14-24, in regards to *Wands* Factor 3 --the presence or absence of working examples- the Boards’ Decision states “[t]he Specification contains no working examples at all of high temperature superconductors other than mixed transition oxide materials, and none of the claims under consideration are limited to such materials.” As stated above the United States Supreme Court in *Minerals Separation v. Hyde* found a claim enabled that included within its scope “composition of ores [that] varies infinitely, each one presenting its special problem” (see *Minerals Separation v. Hyde* Enablement Statement above) based on Mineral Patent Col. 2, lines 70 – 76, and description in the Minerals Patent of an ore at Col. 1, lines 10 – 12. Thus 8 lines were sufficient to enable a

claim the included within its scope "composition of ores [that] varies infinitely, each one presenting its special problem."

- a. It is the Supreme Court's position in *Minerals Separation, Ltd. v. Hyde* that such a position is untenable where it is experimentally determinable which material exhibits superconductivity. The court states in *The Supreme Court Minerals v. Hyde Enablement* Statement quoted above "[t]he composition of ores varies infinitely, each one presenting its special problem, and it is obviously impossible to specify in a patent the precise treatment which would be most successful and economical in each case."

IV. At BD page 38, lines 2-16, in regards to *Wands* Factor 4 -the nature of the invention:- the Boards Decision states " With respect to this factor, Appellants state '[t]he invention is easily practiced by a person of skill in the art' (App. Br., vol. 1, p. 126). We do not see the relevance of this statement to the factor under review. Furthermore, for reasons explained above, the arguments and evidence of record do not support the proposition that the full scope of the invention defined by the claims of this subsection "is easily practiced by a person of skill in the art"

- a. It is the Supreme Court's position in *Minerals Separation, Ltd. v. Hyde* that such a position is untenable where it is experimentally determinable which material exhibits superconductivity. The court states in *The Supreme Court Minerals v. Hyde Enablement* Statement quoted above "[t]he composition of ores varies infinitely, each one presenting its special problem, and it is obviously impossible to specify in a patent the precise treatment which would be most successful and economical in each case." Appellants' statement that "[t]he invention is easily practiced by a person of skill in the art" (App. Br., vol. 1, p. 126) is not contradicted. There is no evidence that Appellant's invention of the Subsection III claims outside the scope of what the Board's Decision considers enabled is not easily practiced by a person of

skill in the art. The only species identified in the Board's Decision is MgB_2 identified in the Schuller Article. As noted above MgB_2 is layered (BV1 page 203, lines 11-13), a property specifically identified by Appellant's Specifications, is made by the same procedures explicitly taught by Appellants' Specification (BV1 page 201 paragraph 19), was made more than 30 years before Appellants discovery (RB3 page 2, lines 4-9) and Mg is explicitly taught by Appellants' Specification as a constituent of as a constituent high T_C superconductors (BV1 page 208 last 3 lines states "Applicants' specification explicitly teaches high T_C compositions containing Mg. Mg is an alkaline earth element. See Brief Volume 2 for details at page 138-139.") and that both Mg and B are constituents of superconductors having a T_C less than 26 degrees Kelvin (RB2, page 4, line 8 to page 6, line 4) .

- V. At BD page 38, line 17 to page 39, line 2, in regards to *Wands* Factor 5= the state of the prior art- the Board's Decision states. "[b]ased on the record before us, there is no prior art relating to high temperature superconductors of the type [Subsection III] defined by the claims under consideration." This is an error of fact since MgB_2 was made more than 30 years before Appellants discovery (RB3 page 2, lines 4-9) and is a high temperature superconductor.

- a. It is the Supreme Court's position in *Minerals Separation, Ltd. v. Hyde* that such a position is untenable where it is experimentally determinable which material exhibits superconductivity. The court states in *The Supreme Court Minerals v. Hyde* Enablement Statement quoted above "[t]he composition of ores varies infinitely, each one presenting its special problem, and it is obviously impossible to specify in a patent the precise treatment which would be most successful and economical in each case." The Supreme Court clearly says "leaving something to the skill of persons applying the invention is clearly sufficiently definite to

guide those skilled in the art to its successful application.”

Moreover, there is no certainty that the claimed method in the Materials Patent would work for every ore until it was experimentally determined to work for a particular ore. This did not render the claims not enabled. It is clear that the Supreme Court did not find that it was necessary to know what ores the process worked for in advance since this was experimentally determinable by techniques known to persons of skill in the art following the teaching in the Minerals Patent. Thus the patent applicant of the Minerals Patent was not required to foresee (or predict in the sense used by the Board’s Decision of the present application) all species that came within the scope of the Minerals Patent claims. The same is true of the claims under appeal herein and for which the Board’s Decision has not reversed the Examiner’s rejections not enabled.

- VI. At BD page 39, line13 to page 40, line 5, in regards to *Wands* Factor 6- the relative skill in the art-in the art, the Board’s Decision agrees with Appellants
- VII. At BD page 40, lines 6-13 to page 40, line 5, in regards to *Wands* Factor 7 – the predictability or unpredictability of the art – the Boards’ Decision states “we consider the high temperature superconductor art to be unpredictable and disagree with Appellants’ contrary view (App. Br., vol. 1, p. 127). This is especially so with respect to the claims under consideration [Subsection III] since Appellants’ Specification provides no direction or guidance for making the claimed high temperature superconductors other than the mixed transition metal oxides previously discussed.”
 - a. It is the Supreme Court’s position in *Minerals Separation, Ltd. v. Hyde* that such a position is untenable where it is experimentally determinable which material exhibits superconductivity. The court states in *The Supreme Court Minerals v. Hyde Enablement*

Statement quoted above “[t]he composition of ores varies infinitely, each one presenting its special problem, and it is obviously impossible to specify in a patent the precise treatment which would be most successful and economical in each case.”

- b. Preliminarily, that the art of making high T_c materials is complex does not necessarily render generic claims not enabled since the skill of persons in this art is high. Thus the complexity is within the skill of the art. The Board’s statement that the high T_c art is unpredictable is untenable in view of the Supreme Court’s position in *Minerals Separation, Ltd. v. Hyde* that “[t]he process is one for dealing with a large class of substances and the range of treatment within the terms of the claims, while leaving something to the skill of persons applying the invention, is clearly sufficiently definite to guide those skilled in the art to its successful application, as the evidence abundantly shows.” Since the Board’s Decision does not dispute that species within the scope of the Subsection III claims and outside the scope of what the Board’s Decision has found enabled can be made by what is known to persons of skill in the art, the Board’s Decision has acknowledged that persons of skill in the art know how to make materials within the scope of Appellants’ rejected Subsection III claims and since it is un rebutted that they know how to test these materials for the high T_c property, Appellants’ teaching “is clearly sufficiently definite to guide those skilled in the art to its successful application, as the evidence [submitted by Appellants] abundantly shows.”
- c. The Board’s Decision states with respect to the Subsection III claims “Appellants’ Specification provides no direction or guidance for making the claimed high temperature superconductors other than the mixed transition metal oxides previously discussed.” It is the Supreme Court’s position in

Minerals Separation, Ltd. v. Hyde that such a position is untenable where it is experimentally determinable which material exhibits superconductivity. As noted above the patent at issue in the Minerals Separation, Ltd. v. Hyde dispute described only a small number of examples but as noted in the Supreme Court Minerals v. Hyde Enablement Statement quoted above “[t]he **composition of ores varies infinitely**, each one presenting its special problem, and it is obviously impossible to specify in a patent the precise treatment which would be most successful and economical in each case. The process is one for dealing with a large class of substances and the range of treatment within the terms of the claims, while leaving something to the skill of persons applying the invention, is clearly sufficiently definite to guide those skilled in the art to its successful application, as the evidence abundantly shows.” Thus the Supreme Court found enabled claims covering a composition that “varies infinitely” based on a description that describes a few examples where, as in the present application, it was within the skill of the art to apply the invention to other species in that infinite variety.

- VIII. At BD page 40, lines 14=page 41, line 7, in regards to *Wands* Factor 78 – the breadth of the claims states “[w]e have already explained that the claims in this subsection encompass broadly claimed high temperature superconductors such as oxides (claim 12) and compositions (claim 88) whose scope far exceeds the mixed transition metal oxides of subsections I and II.” As stated above in *Minerals Separation v. Hyde* the Supreme Court found claims enabled containing an infinite number of species based on eight lines of specifically described species. Thus a claim of very broad scope is not enabled because there are a small number of specifically described species... The Boards’ Decision states Appellants’ Specification has 23 pages of described species which is far more than the eight lines in the Materials Separation patent. The Board’s Decision

further states at page 41, lines 1-7, “[a]s discussed above, Appellants’ arguments and evidence of record have little if any value establishing that an artisan would have reasonably believed that Appellants’ high temperature superconductivity success with mixed transition metal oxides could be extrapolated with a reasonable expectation of success to the other materials encompassed by the claims of this subsection.” As shown above a person of ordinary skill in the art has a reasonable expectation of success in making and testing materials to determine if they are high temperature superconductors. This is not contested by the Board’s Decision. This is all that the Supreme Court requires in *Minerals Separation, Hyde*, when it states “the certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter.”

When the eight *In re Wands* factors are applied to the Subsection III claims and considered in light of the Supreme Court’s decision *Minerals Separation v. Hyde*, which it must, these eight factors militate in favor of the Subsection III claims being enabled in direct contradiction of the Board’s Decision. Thus the Board’s Decision is an error of law.

It is thus clear following the Supreme Court decision in *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261 that all of Applicants’ claims are enabled and Applicants request that the Board reverse the rejections for lack of enablement.

BV1 paragraph bridging 230-231, states:

The reason given by the Supreme Court, as quoted above in The Supreme Court *Minerals v. Hyde* Enablement Statement, for why the generic claims covering an infinite number of species were enabled is “[t]he process is one for dealing with a large class of substances and the range of treatment within the terms of the claims, while leaving something to the skill of persons applying the invention, is clearly sufficiently definite to guide those skilled in the art to its successful application, as the evidence abundantly shows. This satisfies the law.” That there is a large class (infinite in number) of substances within the scope of the claim that may not be specifically

described, and where the specification only describes a small number of preferred embodiments, does not render the claim not enabled. The Supreme Court clearly says "leaving something to the skill of persons applying the invention is clearly sufficiently definite to guide those skilled in the art to its successful application." Moreover, there is no certainty that the claimed method in the Materials Patent would work for every ore until it was experimentally determined to work for a particular ore. This did not render the claims not enabled. It is clear that the Supreme Court did not find that it was necessary to know what ores the process worked for in advance since this was experimentally determinable by techniques known to persons of skill in the art following the teaching in the Minerals Patent. Thus the patent applicant of the Minerals Patent was not required to foresee (or predict in the sense used by the Examiner of the present application) all species that came within the scope of the Minerals Patent claims. The same is true of the claims under appeal herein and rejected as not enabled.

This is uncontested by the Board's Decision

Applicants have shown that persons of ordinary skill in the art as of Applicants discovery can practice Applicants' claims to their full scope and it is Applicants' understanding of the Examiner's statements that the Examiner has agreed with this.

3. Supplement Section

IN RE COOK

In the Reply Brief page 13, line 1 to page 15, last line, Appellants apply the CCPA decision *In re Cook*. (In re Cook, 439 F.2d 730, 169 USPQ 298 (CCPA 1971) BV1 107, 110, 111, 136, 139, 141, 152, 156, RB 6, 13, 14, 15) The Board's Decision did not comment on nor rebut that analysis. The Board's Decision is in conflict with *In re Cook*. As stated in the Brief the claimed invention considered by the CCPA in *In re Cook* was directed to a four-member zoom lenses involving a complex set of design parameters. The CCPA in *In re Cook* 169 USPQ 298, 300 states:

It seems to have been agreed by all concerned that the design of commercially satisfactory zoom lenses of the kind involved here (i.e.,

four-member zoom lenses) is an extremely complex and time-consuming operation, even with the aid of modern computer techniques. Thus, quite apart from appellants' teachings, it would take a lens designer setting out to design a new zoom lens of this type many months, or even years, to come up with a marketable lens assembly possessing all the desired characteristics.

The CCPA held that the *In re Cook* claims could not be found not enabled merely because following the patent application's teaching it would take a person of skill in the art a long time to design other embodiments within the scope of the claims that were not specifically described in the specification.

The CCPA in *In re Cook* 169 USPQ 298, 302 states:

We agree that appellants' claims are not too broad "to the point of invalidity" just because they read on even a very large number of inoperative embodiments, since it seems to be conceded that a person skilled in the relevant art could determine which conceived but not-yet-fabricated embodiments would be inoperative with expenditure of no more effort than is normally required of a lens designer checking out a proposed set of parameters.

In *In re Cook* the CCPA held that even though the claims included inoperative species this did not render the claims not enabled since persons of skill in the art could determine "which conceived but not-yet-fabricated embodiments would be inoperative." That is, a person of skill in the art could go through the time consuming and complex computation to determine whether a particular selected design within the scope of the claims functioned as a zoom lens. In *In re Cook* the CCPA found that the necessity of doing a complex time consuming calculation to determine whether a particular design was operable was not undue experimentation. This corresponds to the "theoretical experiment" referred to in the Affidavit of Newns (Brief Attachment AP). The Board's Decision has not commented on this. In the present application by analogy once a particular composition having a high T_c is conceived following the CCPA rational in *In re Cook* "a person skilled in the relevant art could determine which conceived but not-yet-fabricated embodiments would be inoperative with expenditure of no more effort than is normally required of a [person of ordinary skill in the ceramic fabrication art] checking out a proposed [composition by fabricating and testing it.]" by the well known

methods of fabrication that do not require an understanding of the underlying complex chemistry as stated by Poole 1988 (Brief Attachment AF and AW) quoted above. See the DST AFFIDAVITS (Brief Attachments AM, AN and AO.) Thus under *In re Cook* Appellants' Subsection III claims are enabled. Also, none of Applicants claims include inoperative species within their scope. It is also uncontested that persons of ordinary skill use routines method to test for superconductivity.

In *In re Cook* the CCPA found claims not enabled saying:

Appellants having failed to establish the truthfulness of their assertions about the validity of their ranges when reasonably challenged to do so by the examiner, we hold that the Patent Office properly rejected the appealed claims. The decision of the board is affirmed. *In re Cook*, 58 C.C.P.A. 1049, 1056 (C.C.P.A. 1971) 169 USPQ 298

Applicants have established the truthfulness of their assertion by abundant unrebutted factual evidence. For these reasons the Board's Decision sustaining the Examiner's rejection for lack of enablement of the Subsection III claims should be reversed.

In *In re Cook* the inventor in response to the CCPA decision filed a continuation application which issued as US patent US3736048. Claim 1 of this issued patent is shown below as an amended version of the claim on appeal in *In re Cook*. Thus the issued claims deleted a range (with radius of curvature lying numerically between $0.5f(C)$ and $1.0f(C)$) in the last line of the claim on appeal and added a limitation to the preamble (said objective having a maximum equivalent focal length at least 6 times its maximum focal length). This is the amended version of the claim on appeal:

1. An optical objective of the zoom type (that is of the type having relatively movable members whereby the equivalent focal length of the objective can be continuously varied throughout a range, whilst maintaining constant position of the image plane), corrected for spherical and chromatic aberrations, coma, astigmatism, field curvature and distortion, said objective having a maximum equivalent focal length at least 6 times its maximum focal length and

comprising a convergent first member which for a given object distance

remains stationary during the zooming relative movements,

an axially movable divergent second member behind the first member having equivalent focal length f_b lying numerically between 4 and 8 times the minimum value of the ratio of the equivalent focal length of the complete objective to the f-number of the objective in the range of variation,

an axially movable divergent third member behind the second member having equivalent focal length $f(c)$ lying numerically between 5 and 10 times the minimum value of such ratio,

a stationary convergent fourth member behind the third member.

a zoom control element, and

means whereby operation of the zoom control element causes the zooming relative movements to be effected,

wherein

the total axial movement of the second member in the range of variation lies numerically between $1.5f(B)$ and $2.5f(B)$ and

the total axial movement of the third member in the range lies numerically between $0.25(c)$ and $0.5f(C)$,

the minimum axial separation between the second and third members occurring when the equivalent focal length of the objective is greater than half its maximum value in the range of variation,

the movable divergent second member consisting of a divergent simple meniscus component with its surfaces convex to the front and a divergent compound component behind such simple component, and

the movable divergent third member consisting of a doublet component having its front surface concave to the front with radius of curvature lying numerically between $0.5f(C)$ and $1.0f(C)$.

Ranges were deleted from dependent claims on appeal in *In re Cook*. Thus the breath of each amended dependent claim was broadened by this deletion. Consequently, the claims of the issued patent US3736048 have a scope that is not narrower than the claims on appeal in *In re Cook*. Thus the USPTO found, following the decision by the CCPA in *In re Cook*, claims enabled

- “which read on even a very large number of inoperative embodiments, since it seems to be conceded that a person skilled in the relevant art could determine which conceived but not-yet-fabricated embodiments would be inoperative with expenditure of no more effort than is normally required of a lens designer checking out a proposed set of parameters.” *In re Cook* 169 USPQ 298, 302 and
- claims for which “it would take a lens designer setting out to design a new zoom lens of this type many months, or even years, to come up with a marketable lens assembly possessing all the desired characteristics.” *In re Cook* 169 USPQ 298, 300.

The Board’s Decision in direct conflict with *In re Cook* and with the final result of the claims under review in *In re Cook* which were ultimately found enabled by the USPTO. Following *In re Cook* it is consistent with enablement to make species, including those that do not work, even if takes a long time to make and test them if expenditure of no more effort than is normally required of a person of ordinary skill in the art is used to make and test those species. There is no evidence or argument in the Boards Decision to the contrary in regards to the Subsection III claims. Thus it is an error of law to find the Subsection III claims not enabled.

Moreover, the CCPA decision in *In re Cook* supports Appellants position that an art is predictable when it is determinable with out undue experimentation. Thus when the Board’s Decision states, in the paragraph bridging pages 26-27

Appellants contend that the high temperature superconductor art is predictable rather than unpredictable. According to Appellants, “since the Examiner agrees that in view of Applicants’ teaching other embodiments can be made without difficulty and since testing such embodiments for the presence of superconductivity is well know [sic] and routine, the art of high Tc superconductivity is predictable or determinable and thus enabled by Applicants’ teaching” (App. Br., vol. 1, p. 84). We do not share Appellants’ premise that the capability of an artisan to make and test embodiments other than those allowed by the Examiner establishes predictability in the art of high temperature superconductivity. On this record, Appellants have not shown the asserted correlation between capability and predictability.

the Board's statement "[w]e do not share Appellants' premise that the capability of an artisan to make and test embodiments other than those allowed by the Examiner establishes predictability in the art of high temperature superconductivity" is in direct conflict with the Supreme Court's decision in *Miner Separation v. Hyde* and the CCPA's decision in *In re Cook* both of which stand for the position that determinability is equivalent to being predictable since as stated many times the term predictable in the patent law does not mean "foreseeable" or "knowledge in advance" but means determinable by experiment or calculation by methods known to persons of skill in the art.

As stated above BVI page 232, lines 14-26, states

The CCPA in *In re Angstadt*, 537 F.2d 498, 503 (C.C.P.A. 1976) 190 USPQ 214 commenting on the dissent states:

The dissent's reliance on *In re Rainer*, 54 CCPA 1445, 377 F.2d 1006, 153 USPQ 802 (1967), is misplaced. If *Rainer* stands for the proposition that the disclosure must provide "guidance which will enable one skilled in the art to determine, with reasonable certainty before performing the reaction, whether the claimed product will be obtained" (emphasis in original), as the dissent claims, then all "experimentation" is "undue," since the term "experimentation" implies that the success of the particular activity is uncertain. Such a proposition is contrary to the basic policy of the Patent Act, which is to encourage disclosure of inventions and thereby to promote progress in the useful art.

Thus it is clear that *In re Angstadt* does not support the implied statement in the Board's Decision at BD page 20, lines 1-3 from the bottom, that "Appellants' Specification [must] provides a reasonable amount of direction or guidance in identifying the compositions in question as possessing high temperature superconductive characteristics."

4. Supplement Section

As stated above the Board's Decision states at DB page 20, lines 2-4 from the bottom, in reference to Subsection II superconductors (as defined at BD page 17, lines 2-6) "[a]s explained above, Appellants' Specification provides a reasonable amount of

direction or guidance in identifying the compositions in question as possessing high temperature superconductive characteristics” and when it at BD page 38, lines 1 –4 from the bottom, states “[t]he prior art of record in this appeal is limited to fabrication of mixed transition metal oxide materials of the type discussed in subsections I and II. None of the claims in this subsection III are limited to such materials.”

Also As stated above the Board’s Decision provides no legal authority for the statement that “a reasonable amount of direction or guidance in identifying the compositions in question as possessing high temperature superconductive characteristics” is necessary to satisfy the enablement requirement. There is no United States Federal Court decision that states that “a reasonable amount of direction or guidance in identifying” species that com within the scope of a claim in necessary to satisfy the enablement requirement of that claim to its full scope. As stated above it is well settled law that a patent applicant does not have to foresee in advance all species that come within the scope of a claim for the claim to be enabled to its full scope.

In Part V of BV1 starting at page 17 under heading “Summary of Claimed Subject Matter” and in Volume 2 of the Appeal Brief a summary is provided of each rejected claim and where support for these claims is found in the Specification. As stated in the Initial Request the Board’s Decision makes no comment on each of these individually appealed claims and does not explain why the specific limitations of these claims do not provide the type of guidance that the Supreme Court in *Mineral Separation v. Hyd.* indicates is sufficient to satisfy enablement when it says “leaving something to the skill of persons applying the invention is clearly sufficiently definite to guide those skilled in the art to its successful application.” (See the Minerals Separation v. Hyde Enablement Statement.) Many of these limitations are directed to structural elements such as layered, perovskite, mixed valent, etc.. Why is this not sufficient “identifying” in the sense used in the Board’s Decision? The Board’s Decision simply ignores this by not making a comment on this. The Board cannot simply ignore these more specific limitations. By doing so the Board’s Decision does not make out a prima facie case of lack of enablement as to these claims and thereby as the broader claims of Subsection III.

As stated above BV1 page 232, lines 14-26, states

The CCPA in *In re Angstadt*, 537 F.2d 498, 503 (C.C.P.A. 1976) 190 USPQ 214 commenting on the dissent states:

The dissent's reliance on *In re Rainer*, 54 CCPA 1445, 377 F.2d 1006, 153 USPQ 802 (1967), is misplaced. If *Rainer* stands for the proposition that the disclosure must provide "guidance which will enable one skilled in the art to determine, with reasonable certainty before performing the reaction, whether the claimed product will be obtained" (emphasis in original), as the dissent claims, then all "experimentation" is "undue," since the term "experimentation" implies that the success of the particular activity is uncertain. Such a proposition is contrary to the basic policy of the Patent Act, which is to encourage disclosure of inventions and thereby to promote progress in the useful art

Thus it is clear that *In re Angstadt* does not support the implied statement in the Board's Decision at BD page 20, lines 1-3 from the bottom, that "Appellants' Specification [must] provides a reasonable amount of direction or guidance in identifying the compositions in question as possessing high temperature superconductive characteristics." Also, the "guidance" provided by Appellants' Specification as summarized in Part V of BVI starting at page 17 under heading "Summary of Claimed Subject Matter" and in Volume 2 of the Appeal Brief is consistent with the passage above quoted from *In re Angstadt*. Thus Appellants' Subsection III claims are enabled to their full scope.

5. Supplement Section

For the Board's convenience in a subsequently submitted Supplement 2 Appellants will provide a copy of *In re Cook*, US3736048 and the file history of US3736048.

6. Supplement Section

CONCLUSION

For the reasons given in the Initial Request for Rehearing and this Supplement Appellants request the Board to reverse the rejection of the Subsection

III claims found not enabled in the Final Action and for which the Board's Decisions did not reverse the Examiner's rejections, in particular for those claims reciting that the superconductive element can be made by known principles or ceramic science as identified in the Initial Request for Rehearing.

Please charge any fee necessary to enter this paper and any previous paper to deposit account 09-0468.

Respectfully submitted,

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